V. REMARKS

Entry of the Amendment is proper under 37 C.F.R. §1.116 because the Amendment: a) places the application in condition for allowance for the reasons discussed herein; b) does not raise any new issue requiring further search and/or consideration because the Amendment amplifies issues previously discussed throughout prosecution; c) does not present any additional claims without canceling a corresponding number of finally rejected claims; and d) places the application in better form for appeal, should an Appeal be necessary. The Amendment is necessary and was not earlier presented because it is made in response to arguments raised in the final rejection. The amendments to the subject claims do not incorporate any new subject matter into the claims. Thus, entry of the Amendment is respectfully requested.

Claims 1, 2, 6, 9 and 12 are rejected under 35 U.S.C. 102(e) as anticipated by Beigel et al. (U.S. Patent No. 6,472,975). The rejection is respectfully traversed.

Beigel teaches a coil in a reader that is used to establish an alternating magnetic field that is transformer-coupled through capacitors to a push-pull driving circuit consisting of four field-effect transistors connected in a bridge arrangement. The coil, capacitors, and coupling circuitry are maintained in a tuned condition by continually adjusting either the driving frequency, the coil inductance, or the capacitor capacitance during communications. A tag utilizes a coil to couple with the reader's alternating magnetic field and a capacitor to resonate the coil, thereby extracting power from the field more efficiently. Transformer coupling of the coil and capacitor is utilized for improved impedance matching. The coil, capacitor, and coupling circuitry can be maintained in a tuned condition by continually adjusting either the coil inductance or the capacitor capacitance during communications.

Claim 1, as amended, is directed to an antenna device of an interrogator having a resonance frequency of a predetermined value which constitutes an automatic identification system by exchanging information with an IC tag

attached to an object to be identified by electromagnetic coupling. Claim 1 recites that the antenna device comprises an antenna element and a capacitor. Claim 1 recites that the antenna element includes an antenna coil fabricated from at least one turn of an electrically conductive material, a resistance component and an inductance component connected in series with the antenna coil and the capacitor is connected in series to the antenna element with the resistance component disposed between the capacitor and the inductance component.

It is respectfully submitted that the rejection is improper because the applied art fails to teach each element of claim 1 as amended. Specifically, it is respectfully submitted that the applied art fails to teach an antenna element that includes an antenna coil fabricated from at least one turn of an electrically conductive material, a resistance component and an inductance component connected in series with the antenna coil and a capacitor connected in series to the antenna element with the resistance component disposed between the capacitor and the inductance component. As a result, it is respectfully submitted that claim 1 is allowable over the applied art.

Claims 2, 6, 9 and 12 depend from claim 1 and include all of the features of claim 1. Thus, it is respectfully submitted that the dependent claims are allowable at least for the reason claim 1 is allowable as well as for the features they recite.

For instance, claim 6 recites the switch is a semiconductor switch which is controlled by a control circuit for detecting a deviation of the resonance frequency and controlling the resonance frequency to a predetermined frequency.

Withdrawal of the rejection is respectfully requested.

Claims 3-5, 7, 8, 10, 11, 13 and 14 are rejected under 35 U.S.C. 103(a) as unpatentable over Beigel in view of Suga et al. (U.S. Patent No. 6,321,067). The rejection is respectfully traversed.

Suga teaches a power transmission system in which power is transmitted by radio wave from a power transmission device to an IC card that includes a converter circuit, a detector circuit portion and a transmitting unit. The converter circuit includes a first antenna having a resonance circuit for receiving the

transmitted radio wave and a rectifier circuit which converts an induced power received in the antenna into a DC voltage in rectifying it with the DC voltage being supplied to an internal circuit. The detector circuit portion detects one of the induced power obtained from the first antenna of the converter circuit and a voltage corresponding to the induced power. The transmitting unit transmits information by a radio wave to the power transmission device. The information is concerned with either the induced power or the voltage detected by the detector circuit portion. The power transmission device includes a receiving unit which receives the information by the radio wave being transmitted from the transmitting unit of the IC card, a control power supply circuit which controls an output of high frequency power based on the information received by receiving unit and a power transmitting unit having a second antenna for transmitting the output of high frequency power by the radio wave. The output of high frequency power is controlled by the control power supply circuit.

Claim 3, as amended, is directed to an antenna device of an interrogator having a resonance frequency of a predetermined value which constitutes an automatic identification system by exchanging information with an IC tag attached to an object to be identified by electromagnetic coupling. Claim 3 recites that the antenna device includes an antenna element including an antenna coil fabricated from at least one turn of an electrically conductive material, a resistance component, a tapped inductor and a fixed capacitor connected in series with the antenna coil with the resistance component disposed between the tapped inductor and the fixed capacitor with the tapped inductor having taps which are switched from one to another to maintain the resonance frequency of the antenna device at the predetermined value.

It is respectfully submitted that none of the applied art, alone or in combination, teaches or suggests the features of claim 3 as amended. Specifically, it is respectfully submitted that none of the applied art, alone or in combination, teaches or suggests an antenna element including an antenna coil fabricated from at least one turn of an electrically conductive material, a resistance component, a tapped inductor and a fixed capacitor connected in

series with the antenna coil with the resistance component disposed between the tapped inductor and the fixed capacitor and with the tapped inductor having taps which are switched from one to another to maintain the resonance frequency of the antenna device at the predetermined value. Thus, it is respectfully submitted that one of ordinary skill in the art would not be motivated to combine the features of the applied art because such combination would not result in the claimed invention. As a result, it is respectfully submitted that claim 3 is allowable over the applied art.

Claim 4, as amended, is directed to an antenna device of an interrogator having a resonance frequency of a predetermined value which constitutes an automatic identification system by exchanging information with an IC tag attached to an object to be identified by electromagnetic coupling. Claim 4 recites that the antenna device includes an antenna element and a tapped inductor. Claim 4 further recites that the antenna element includes an antenna coil fabricated from at least one turn of an electrically conductive material, a resistance component, an inductance component and a fixed capacitor connected in series with the antenna coil with the resistance component disposed between the inductance component and the fixed capacitor and the tapped inductor is connected in series to the antenna element and has taps which are switched from one to another to maintain the resonance frequency of the antenna device at the predetermined value.

It is respectfully submitted that none of the applied art, alone or in combination, teaches or suggests the features of claim 4. Specifically, it is respectfully submitted that none of the applied art, alone or in combination, teaches or suggests an antenna element that includes an antenna coil fabricated from at least one turn of an electrically conductive material, a resistance component, an inductance component and a fixed capacitor connected in series with the antenna coil with the resistance component disposed between the inductance component and the fixed capacitor and a tapped inductor connected in series to the antenna element and having taps which are switched from one to another to maintain the resonance frequency of the antenna device at the

predetermined value. Thus, it is respectfully submitted that one of ordinary skill in the art would not be motivated to combine the features of the applied art because such combination would not result in the claimed invention. As a result, it is respectfully submitted that claim 4 is allowable over the applied art.

Claim 7, as amended, is directed to an antenna device of an interrogator having a resonance frequency of a predetermined value which constitutes an automatic identification system by exchanging information with an IC tag attached to an object to be identified by electromagnetic coupling. Claim 7 recites that the antenna device includes an antenna element including an antenna coil fabricated from at least one turn of an electrically conductive material, a resistance component and a fixed capacitor connected in series with the antenna coil and a variable inductor connected in series to the antenna coil with the resistance component disposed between the variable inductor and the fixed capacitor. Claim 7 further recites that the variable inductor is operative for maintaining the resonance frequency of the antenna device at the predetermined value.

It is respectfully submitted that none of the applied art, alone or in combination, teaches or suggests the features of claim 7 as amended. Specifically, it is respectfully submitted that none of the applied art, alone or in combination, teaches or suggests an antenna element that includes an antenna coil fabricated from at least one turn of an electrically conductive material, a resistance component and a fixed capacitor connected in series with the antenna coil and a variable inductor connected in series to the antenna coil with the resistance component disposed between the variable inductor and the fixed capacitor. Thus, it is respectfully submitted that one of ordinary skill in the art would not be motivated to combine the features of the applied art because such combination would not result in the claimed invention. As a result, it is respectfully submitted that claim 7 is allowable over the applied art.

Claims 5, 10 and 11 depend from claim 3 and include all of the features of claim 3. Claim 13 depends from claim 4 and includes all of the features of claim 1. Claims 8 and 14 depend from claim 7 and include all of the features of claim 7.

Thus, it is respectfully submitted that the dependent claims are allowable at least for the reasons the independent claims are allowable as well as for the features they recite.

For instance, claim 5 recites that the taps are converted by switching a switch. Claim 11 recites that a predetermined communication distance is ensured by varying a drive voltage of the antenna device. Claim 8 recites that the variable inductor is controlled by a control circuit for detecting a deviation of resonance frequency and controlling resonance frequency to a predetermined frequency. Claim 10 recites that the switch is a semiconductor switch which is controlled by a control circuit for detecting a deviation of the resonance frequency and controlling the resonance frequency to a predetermined frequency.

Withdrawal of the rejection is respectfully requested.

In view of the foregoing, reconsideration of the application and allowance of the pending claims are respectfully requested. Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' representative at the telephone number listed below.

Should additional fees be necessary in connection with the filing of this paper or if a Petition for Extension of Time is required for timely acceptance of the same, the Commissioner is hereby authorized to charge Deposit Account No. 18-0013 for any such fees and Applicant(s) hereby petition for such extension of time.

Respectfully submitted,

Date: March 4, 2005

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